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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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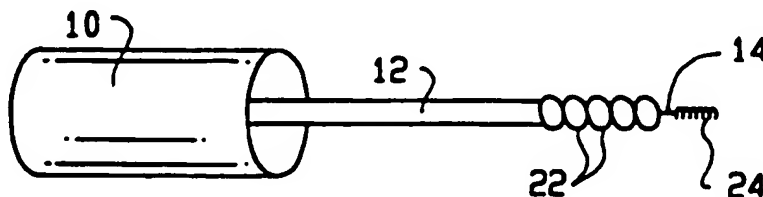
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(54) Title: MASCARA APPLICATOR

## (57) Abstract

A mascara applicator having one or more beads (22) disposed on a central axle (14) extending longitudinally from an elongated rod (12) and handle (10), is disclosed. A first preferred embodiment comprises a single cylindrical bead (16) molded from plastic and having a series of longitudinally spaced grooves (20) along the length of the bead. A second preferred embodiment comprises a plurality of about 5 beads to 7 beads (22) disposed on a metal axle and retained by means of a flat headed pin. The beads (22) are capable of individually or collectively rotating about the axle (14) to create optimal mascara application and lash separation. A mascara applicator package utilizing the aforementioned applicator and a housing for storing the applicator and mascara supply, is also disclosed.



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# **MASCARA APPLICATOR**

## **BACKGROUND OF THE INVENTION**

5       The present invention relates generally to the field of mascara applicators, and in particular to mascara applicators utilizing means other than bristles.

      Mascara applicators have traditionally been of the brush-type comprising a multiplicity of bristles mounted to a  
10 helically twisted wire, such that the free ends of the bristles are typically disposed in a spiral configuration. The disadvantage associated with use of the aforementioned bristle-type mascara applicators is that of uneven distribution of the mascara to the eyelashes. This problem is  
15 caused by the accumulation of mascara on the bristles themselves and within the channels or pockets between the bristles, thereby resulting in excessive mascara being applied to the lashes at the beginning of the application process.

      The prior art has attempted to remedy this problem in a  
20 number of ways. For example, U.S. Patent No. 3,908,676 to Levine discloses a mascara applicator having grooves or reservoirs for storing excess mascara adjacent to the bristles. U.S. Patent No. 5,332,325 to Crosnier incorporates the use of a metering device to expel a predetermined amount  
25 of mascara to the applicator. However, such devices are generally complex and therefore relatively expensive to produce in mass quantities.

      Alternatively, mascara applicators have been developed which utilize molded teeth (U.S. Patent No. 3,896,823 to  
30 Spatz), a ribbed profile (U.S. Patent No. 3,363,635 to Wurmbock) or a series of ring-like discs (U.S. Patent No. 4,411,282 to Wavering) in lieu of the traditional bristle configuration. Similarly, U.S. Patent No. 5,094,254 to Krueckel discloses a mascara applicator having a reservoir and  
35 an applicator surface with a ribbed profile which is capable of exhibiting capillary action. The aforementioned

applicators all utilize means which apply mascara by combing it onto the lash s.

Thus, there is a need for an improv d mascara applicator which allows for the uniform application of mascara and  
5 separation of lashes without the use of a bristled applicator head or other combing mechanism.

#### SUMMARY OF THE INVENTION

10 It is an object of the present invention to provide an inexpensive mascara applicator which is simple to use and capable of uniform application of mascara to the eyelashes.

An additional object of the present invention is to provide a mascara applicator which avoids the use of bristles  
15 which may be easily poked into the eye and cause eye irritation.

A further object of the present invention is to provide a mascara applicator which is capable of optimal lash separation.

20 A still further object of the present invention is to provide a mascara applicator which is capable of reaching corner lashes and the delicate lashes of the lower eyelid.

In accordance with the present invention, the foregoing and other objects are achieved by an improved mascara  
25 applicator having one or more beads secured to a central axle which extends longitudinally from a rod and handle. The axle is preferably formed from a pin having a flat or rounded head so as to retain the bead or beads on the axle. The axle may be securedly fixed to the rod or alternatively, capable of  
30 axial rotation. In an alternative embodiment, a styling tool such as an eyebrow brush or lash separator, is attached to or molded from the end of the axle.

The bead or beads are either hollow or drilled through to accommodate the central axle, and may be manufactured of many  
35 known natural or synthetic materials such as wood, glass, metal, stone or plastic. In an alternative embodiment, the bead or beads are manufactured from or coated with a porous

material, such as a sponge. The bead or beads utilized may be any number of known shapes, sizes and textures depending on the desired effect.

A first preferred embodiment utilizes a single  
5 cylindrically-shaped hollow bead of about 20 millimeters in length and molded from Delron®. The bead preferably contains a series of longitudinally spaced molded grooves or "threading" along the length of the bead at intervals of approximately 0.008 millimeters. Alternatively, the bead  
10 contains latitudinally spaced grooves. The bead is strung onto a stainless steel flat-headed pin or axle which is then connected to the handle rod at the pointed end of the pin. The bead may be securely fixed to the pin or axle or alternatively left unsecured, such that the bead is capable of  
15 rotating about the axle.

A second preferred embodiment utilizes about 5 to 7 hollow spherical metal beads strung onto a stainless steel flat-headed pin wherein the end opposite the head has been secured to the handle rod. The exterior surface of the beads  
20 is preferably textured to contain a plurality of latitudinal grooves. The beads themselves are preferably left unsecured to the metal axle so as to allow for full or partial rotation about the axle. Alternatively, the beads are fixedly secured to the axle. An alternative embodiment utilizes beads of  
25 different shapes and sizes disposed on the axle in an alternated configuration.

The mascara applicator(s) described above may be used as part of a package further comprising a container for storing the applicator and mascara supply. The container consists of  
30 a cylindrical housing having a threaded neck fitted with an opening for receiving the applicator means and rod. The threaded neck connects with complementary threading on the inside of the applicator handle to close the container.

### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view of a first embodiment of a mascara applicator according to the present invention;

5        FIG. 2 is a side elevational view of a second embodiment of a mascara applicator according to the present invention;

FIG. 3 is a side elevational view of a third embodiment of a mascara applicator according to the present invention;

FIG. 4 is a side elevational view of a fourth embodiment of a mascara applicator according to the present invention;  
10 and

FIG. 5 is a side elevational view of a mascara applicator package according to the present invention.

15

### DETAILED DESCRIPTION OF THE INVENTION

A mascara applicator of the present invention is shown in FIG. 1. The applicator comprises a handle 10 having a plastic rod or stem 12 extending longitudinally from the handle. A  
20 thin pin or wire 14 is secured to the rod 12 at the end opposite the handle 10 and extends longitudinally from the rod to form an axle 14. A single bead or applicator member 16 is strung onto the axle 14 prior to securing the axle 14 to the rod 12. The bead 16 may be fixedly secured to the axle or  
25 left unsecured such that the bead 16 freely rotates on axle 14. As shown in FIG. 1, the axle 14 is only partially visible as it extends through the center of bead 16. The pin or wire axle 14 is fixedly secured to the rod 12 by any known means such as welding or bonding with epoxy. Alternatively, the  
30 axle 14 is connected to the rod 12 such that the axle 14 is capable of rotational movement.

The axle 14 may be straight or curved depending on the particular effect desired. The axle 14 may consist of a thin pin, a twisted wire or a threaded wire depending on the  
35 configuration of the bead 16 used. Axle 14 preferably may range from about 7 to 50 millimeters in length and approximately 0.4 to 0.8 millimeters in diameter, although

ther dimensions may be selected by persons of ordinary skill in the art depending on the particular application. The pin or wire 14 will preferably be fashioned with a flat or round head 18 or other means for retaining the bead 16 on the axle 14. In a preferred embodiment, head 18 of pin 14 is shaped so as to function as a styling tool, such as a lash separator or combing implement. Possible materials for axle 14 include iron or stainless steel, plastic or plastic-coated metal. In an exemplary embodiment, bead 16 is strung onto a stainless steel flat or round-headed pin 14 which is then bonded with epoxy to the rod 12 at the tail end of the pin 14 such that the bead 16 itself is capable of at least partial rotation about the axle 14. Alternatively, bead 16 is fixedly secured to axle 14 and axle 14 may or may not be capable of rotational movement.

The bead or applicator member 16 may be formed of any natural or synthetic non-porous material such as, wood, stone, metal, glass or plastic. Preferable bead materials include hematite, silver, gold and Delron®, a known moldable plastic. In an alternative embodiment, the bead 16 may also be formed from or covered with a porous material, such as foam or sponge. The bead 16 has been drilled through the center to form a channel to accommodate the axle 14. The bead 16 may be smooth or textured on its exterior surface. In a preferred embodiment, bead 16 is molded from Delron® and contains a series of longitudinally spaced molded grooves 20 or "threading" along the length of the bead at intervals of approximately 0.008 millimeters. In an alternative embodiment, the grooves are latitudinally spaced around the circumference of the bead. The bead is preferably about twenty millimeters in length and approximately 3.0 mm in diameter.

An alternative embodiment of the present invention is shown in FIG. 2. As described above, the applicator comprises handle 10 having plastic rod or stem 12 extending longitudinally from the handle. Pin or wire 14 is secured to the rod 12 at the end opposite the handle 10 and extends



longitudinally from the rod to form axle 14. In the embodiment shown in Fig. 2, the applicator means is comprised of a plurality of spheres or beads 22 which have been drilled or pierced through the center and strung onto axle 14 in the same fashion as described above for the single-beaded embodiment. Preferably, about 5 to 7 beads are utilized. The pin or wire axle 14 will preferably be fashioned with a head or other means for retaining the beads on the axle. As shown in FIG. 2, the head 24 of axle 14 is preferably shaped so as to function as a styling tool. As shown in FIG. 3, axle 14 may be curved. In both embodiments shown in FIGS. 2 and 3, beads 22 are preferably left unsecured to axle 14 so that beads 22 are capable of individually rotating about axle 14 as contact is made with the eyelashes. Alternatively, beads 22 may be fused together so that they rotate about axle 14 as one unit rather than as individual members. Alternatively, unsecured beads may be interspersed with secured beads so that some beads are capable of rotation while others remain fixed. In those embodiments where axle 14 is capable of rotation, beads 22 may be fixedly secured to axle 14 itself such that beads 22 and axle 14 rotate as one unit. Rotation of beads 22 and/or axle 14 may be 360° or any lesser portion thereof. In those cases where less than full 360° rotation is desired, axle 14 will contain means for halting rotation at the desired position.

These beads 22 may be manufactured of any known natural or synthetic material, such as, wood, stone, metal, glass or plastic. Preferably, beads 22 are manufactured of 14k gold, glass, hematite or 14k gold-plated brass. Beads of various shapes and sizes may be utilized depending on the function intended. For example, beads 22 may have a round, oval, square, conical or elliptical cross-section. Preferably the diameter of beads 22 ranges from 0.80 to 7.0 millimeters and the length of the non-spherical beads may range from 0.80 to 9.0 millimeters. Again, other dimensions may be selected by persons of ordinary skill in the art depending on the particular application desired. Smaller beads are preferred

for those applicators intended for use on the lower lashes or for reaching the inner corners of the eye.

Beads of several different shapes and sizes may also be utilized on the same applicator depending on the desired effect. For example, one may alternate larger beads in the middle portion of the applicator with smaller beads at one or either end of the applicator to conform to the larger and smaller eyelashes found at those portions of the eye. Alternatively, as shown in FIG. 4, beads 26 of one size and shape may be alternated with beads 28 of another size and shape.

In any of the aforementioned embodiments, beads 22 may be hollow or solid and will be drilled or pierced through the center so as to accommodate the central axle 14. The beads 22 may have either a smooth or textured exterior surface. If textured, the bead may contain longitudinal or latitudinal grooves, threading or hammering to facilitate optimal mascara pick up and deposit on the lashes. The textured surfaces are also preferred for those applicators intending to produce greater lash separation.

FIG. 5 shows a mascara applicator package constructed in accordance with the present invention. The applicator package comprises an applicator 29 and a container or housing 30 for storing said applicator and mascara supply. The applicator 29 is designed as described above having a handle 10, a rod 12 extending from said handle 10, an axle 14 extending from said rod 12, and at least one bead or applicator member 16 disposed on said axle 14. The applicator 29 is stored in a tubular container or housing 30 which contains a reservoir of mascara 32. Housing 30 terminates in threaded neck 34 which contains opening 38 adapted to receive rod 12 and bead(s) 22 therethrough. Neck 34 threadedly receives the interior threads 36 which are conventionally formed on the inside of cap or handle 10 to form a closure for reservoir 32. Preferably a wiper 40 (shown in phantom lines) is retained within neck 34 to remove excess mascara from the

applicator as it is extracted from container 30 through opening 38.

The applicator of the present invention heretofore described is intended to be used in the same manner as traditional bristle-type applicators: The applicator is inserted into a container of mascara and retracted through a wiper means to remove excess product. The applicator is then contacted with the eyelashes to apply the mascara to the lashes. However, as described above, in the present invention, the shape of the bead or beads provides optimal application of product to the lashes without the need for the applicator to be manually rotated by the user. The bead rotation further promotes lash separation as the individual lashes are contacted by separate beads or different parts of the same bead which are rotating at different speeds due to the varying diameter of the spheres or the grooved surface.

Therefore, while there have been described what are at present considered to be the preferred embodiments of this invention, it will be obvious to those skilled in the art that various changes and modifications may be made without departing from the invention and it is, therefore, aimed to cover all such changes and modifications that fall within the true spirit and scope of the invention.

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What is claimed is:

1. A mascara applicator, comprising:  
an elongated rod;  
an axle secured to and extending longitudinally from said  
5 rod; and  
at least one pierced bead disposed on said axle, wherein  
said at least one bead is adapted to receive and carry mascara  
for application to eyelashes.
- 10 2. A mascara applicator according to claim 1, wherein said  
axle is fixedly secured to said rod.
3. A mascara applicator according to claim 2, wherein said  
at least one bead is capable of axial rotation about said  
15 axle.
4. A mascara applicator according to claim 3, wherein a  
single bead is utilized.
- 20 5. A mascara applicator according to claim 4, wherein said  
single bead is a cylindrically-shaped bead.
6. A mascara applicator according to claim 5, wherein said  
bead further comprises a series of longitudinally spaced,  
25 circumferential grooves along the length of said bead.
7. A mascara applicator according to claim 3, wherein said  
axle further comprises means for retaining said at least one  
bead on said axle.
- 30 8. A mascara applicator according to claim 7, wherein said  
axle comprises a flat-headed pin.
9. A mascara applicator according to claim 7, wherein said  
35 means for retaining said bead or beads further comprises a  
styling implement.

10. A mascara applicator according to claim 3, wherein said at least one bead is comprised of a nonporous material.
11. A mascara applicator according to claim 10, wherein said at least one bead is comprised of metal or glass.
12. A mascara applicator according to claim 11, wherein said at least one bead is comprised of gold.
- 10 13. A mascara applicator according to claim 12, wherein said at least one bead is spherical.
14. A mascara applicator according to claim 13, wherein said at least one bead has a textured exterior surface.
- 15 15. A mascara applicator according to claim 14, wherein said at least one bead is grooved.
16. A mascara applicator according to claim 3, wherein a plurality of beads are used.
- 20 17. A mascara applicator according to claim 16 wherein said plurality of beads are capable of individual rotation about said axle.
- 25 18. A mascara applicator according to claim 17 wherein said axle is curved.
19. A mascara applicator according to claim 17, wherein said plurality of beads comprises first beads having a first size and shape alternately disposed on said axle with second beads having a second size and shape.
- 30 20. A mascara applicator, comprising:  
35 a handle;  
an axle extending from said handle;

at least one rotatable member disposed on said axle and rotatable about said axle, wherein said rotatable member is adapted to receive mascara for application to eyelashes; and

a housing containing a mascara reservoir and having an opening for receiving said axle and said rotatable member therethrough.

21. The mascara applicator according to claim 20, wherein said handle is securable to said housing to form a closure for said reservoir and said opening is surrounded by a wiper matched to said rotatable member to remove excess mascara upon withdrawal from said reservoir.

22. The mascara applicator according to claim 21, wherein a rod member is disposed between said handle and said axle, said rod member having a diameter less than said handle and greater than said axle.

23. The mascara applicator according to claim 21, wherein said at least one rotatable member comprises a single, cylindrical member.

24. The mascara applicator according to claim 21, wherein said at least one rotatable member comprises a plurality of spherical members.

25. A mascara applicator, comprising:  
a handle;  
an axle extending from said handle; and  
at least one rotatable member mounted on said axle for rotation thereabout, wherein said member is adapted to receive and carry mascara for application to eyelashes, and wherein said member is rotatable on said axle in response to said mascara carrying member being drawn across the eyelashes by a user to apply mascara thereto without user rotation of said handle.

26. A mascara applicator according to claim 25, wherein said at least one rotatable member comprises a single cylindrical member.

5 27. A mascara applicator according to claim 26, wherein said single cylindrical member further comprises a series of longitudinally spaced, circumferential grooves along the length of said member.

10 28. A mascara applicator according to claim 25, wherein said axle further comprises means for retaining said at least one rotatable member on said axle.

29. A mascara applicator according to claim 28, wherein said  
15 means for retaining said at least one rotatable member further comprises a styling implement.

30. A mascara applicator according to claim 25, wherein said axle is curved.

20

31. A mascara applicator according to claim 25, wherein said at least one bead is comprised of metal or glass.

32. A mascara applicator according to claim 31, wherein said  
25 at least one rotatable member comprises a plurality of spherical members.

33. A mascara applicator according to claim 32, wherein said plurality of spherical members have textured exterior  
30 surfaces.

34. A mascara applicator according to claim 25, wherein said at least one rotatable member comprises a plurality of rotatable members, said plurality of rotatable members  
35 comprising first rotatable members having a first size and shape alternately disposed on said axle with second rotatable members having a second size and shape.

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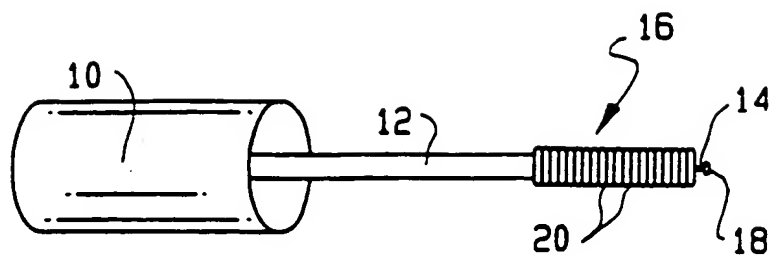


FIG. 1

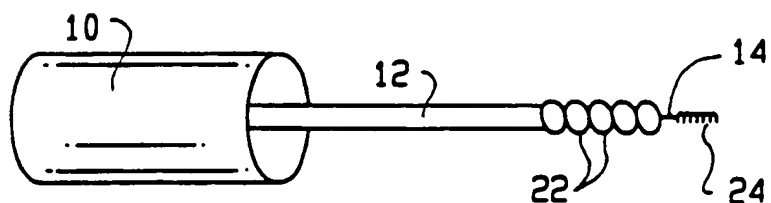


FIG. 2

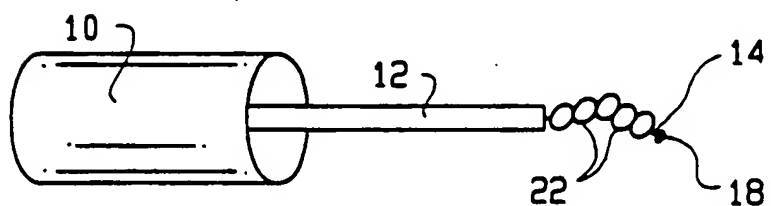


FIG. 3

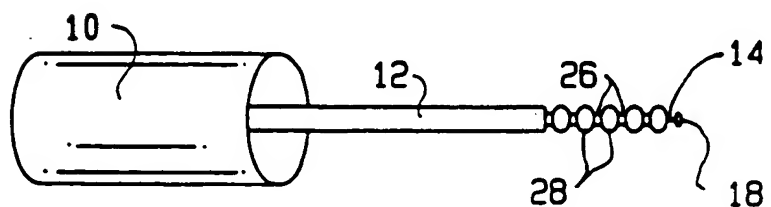


FIG. 4

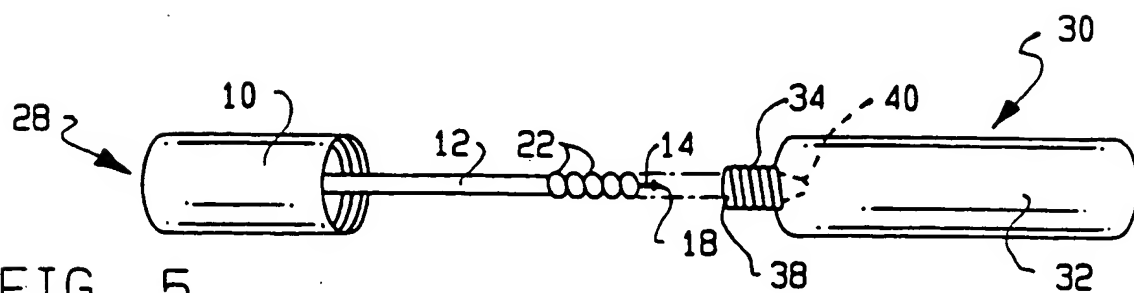


FIG. 5



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US96/01681

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : A45D 40/00; A46B 11/00

US CL : 401/126, 128

According to International Patent Classification (IPC) or to both national classification and IPC

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Minimum documentation searched (classification system followed by classification symbols)

U.S. : 401/126, 128

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US, A, 2,034,416 (A. R. PEAT) 17 March 1936, see entire document.	1-25
Y	US, A, 1,996,897 (J. S. BLINN) 09 April 1935, see entire document.	1-25
Y	US, A, 3,237,630 (E. J. POLITZER) 01 March 1966, see entire document.	1-25
Y	US, A, 3,908,675 (SPATZ ET AL.) 30 September 1975, see element (17).	21-24
Y	CH, A, 241877 (DE TREY) 15 April 1946, see element (6).	18

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

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